

Amdt. dated August 3, 2006
Reply to Office action of May 4, 2006

Serial No. 10/718,009
Docket No. CA990023US2
Firm No. 0055.0021C

Amendments to the Drawings

The attached sheet of drawings includes changes to FIG. 1. This sheet, which includes FIG. 1, replaces the original sheet including FIG. 1.

Attachment: Replacement Sheet

REMARKS/ARGUMENTS

Claims 1-2, 4-7, 9-10, 12-15, 17-18, and 20-23 are pending in the application. Claims 1, 2, 4, 5, 7, 9, 10, 12, 13, 15, 17, 18, 20, 21, and 23 have been amended to overcome a drawing objection and 35 U.S.C. 101 and 112 rejections. Claims 3, 8, 11, 16, 19, and 24 have been cancelled without prejudice. Reconsideration is respectfully requested. Applicants submit that the pending claims 1-2, 4-7, 9-10, 12-15, 17-18, and 20-23 are patentable over the art of record and allowance is respectfully requested of claims 1-2, 4-7, 9-10, 12-15, 17-18, and 20-23.

Applicants would like to thank Examiner Channavajjala for holding a telephone interview with their representative, Janaki K. Davda, on Monday, July 31, 2006, at 1:00 p.m. (EST). Applicants' representative discussed the dropped table history data structure shown as element 14 in Applicants' FIG. 1 and pointed to claim amendments to overcome the drawing objection. The Examiner indicated that he wanted to see drawing amendments. Applicants' representative also discussed proposed amendments to overcome the 101 and 112 rejections. Furthermore, Applicants' representative discussed how the claimed invention is believed to be novel over the prior art, in which an entire database is restored, rather than just a tablespace, when a dropped table is to be recovered. No agreement was reached.

In paragraph 2, the Drawings are objected to. In particular, the Examiner submits that the current drawing of figure 1 does not show "storing table identifier, a time stamp, table definition attributes for the dropped table in a data structure". Applicants respectfully traverse. Figure 1 illustrates "dropped table history 14", which is described as a "dropped table history 14 data structure" on page 4, line 2. Additionally, on page 4, lines 1-7, the Specification describes:

Dropped table history 14 records a dropped table ID, which is *a unique identifier for the dropped table*. Dropped table history 14 also provides a *timestamp* which reflects the time at which the dropped table was dropped from the table space, as well as information about the structure of the table (*table definition attributes*). (emphasis added)

The Applicants have amended claims 1, 9, and 17 to refer to a "dropped table history data structure." In order to expedite prosecution, Applicants have amended Figure 1 so that dropped table history 14 includes a table identifier, a timestamp, and table definition attributes, as described in the Specification (e.g., on page 4, lines 1-7). No new matter has been added. Applicants respectfully submit that the drawings show every feature of the invention specified in the claims.

In paragraph 5, the Specification is objected to due to informalities. Applicants have amended the Specification to place it in better form and to overcome the objection.

In paragraph 7, claims 1-24 are rejected under 35 U.S.C. 101 because the invention is directed to non-statutory matter. Applicants respectfully traverse.

In paragraph 8, regarding claims 1 and 9, the Examiner submits that the claims do not have a practical application because the final result of "upon receiving a request to . . ." is not producing a "useful, tangible and concrete result." Applicants respectfully traverse, but in order to expedite prosecution, Applicants have amended the claims.

Claims 1 and 9 recite "copying data from the dropped table in the rolled forward selected table space to a storage data structure at a file location specified by a user" (e.g., Specification, page 5, lines 13-24). Applicants submit that since the data is copied at a file location specified by a user, the user is capable of checking that the storage data structure is created at the specified file location, and thus, a "useful, tangible and concrete result" is produced.

In paragraph 9, regarding claim 17, the Examiner submits that the claim has the result of producing a "real-world result" related to restoring a table space, but that the claim does not specify storing the real world result. Applicants respectfully traverse, but in order to expedite prosecution, Applicants have amended the claims.

Claim 17 recites "copying data from the dropped table in the rolled forward selected table space to a storage data structure at a file location specified by a user" (e.g., Specification, page 5, lines 13-24). Applicants submit that since the data is copied at a file location specified by a user, the user is capable of checking that the storage data structure is created at the specified file location, and thus, a "useful, tangible and concrete result" is produced.

Additionally, the Examiner submits that the Specification does not teach "computer readable medium". Applicants have incorporated by reference a parent application, which has issued as U.S. Patent No. 6,684,225, and which states:

According to another aspect of the preferred embodiments, there is provided a computer program product for use with a computer comprising a central processing unit and random access memory, said computer program product comprising a computer usable medium having computer readable code means embodied in said medium for managing a database, as described with respect to the above systems.

By the incorporation by reference of U.S. Patent No. 6,684,225, Applicants' current Specification includes a reference to "computer usable medium". Applicants' have amended claim 17 in accordance with the language in the parent application. No new matter has been added.

Moreover, the Examiner submits that "computer readable medium" lacks "storage on a suitable computer-readable medium. Applicants have amended the claims to recite "computer readable code stored in said computer readable medium", which Applicants' submit is supported by the language of "computer readable code means embodied in said medium" incorporated by reference from U.S. Patent No. 6,684,225. No new matter has been added.

The Examiner further submits that "upon receiving a request to restore a table space . . ." is not a positive recitation of a real world result. Applicants respectfully traverse, but, in order to expedite prosecution, Applicants have amended claims 1, 9, and 17 to recite "in response to" instead of "upon". Also, the claims recite "recovering the table space being restored using the dropped table history data structure, wherein the restored table space pre-dates the table space from which the table was dropped", which occurs "in response to receiving a request to restore the table space that includes the dropped table". Moreover, the claims recite copying data from the dropped table in the rolled forward selected table space to a storage data structure at a file location specified by a user. Thus, the claims include a positive recitation of a real world result.

Claims 2-8, 10-16, 18-24 are also rejected. Applicants submit that the dependent claims overcome the 35 U.S.C. 101 rejection at least by their dependence on amended claims 1, 9, and 17.

In paragraph 11, claims 1, 9, and 17 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 6, 11, 19, 23, 27 of U.S. Patent No. 6,684,225. Applicants are submitting a Terminal Disclaimer to overcome the rejection.

In paragraph 12, claims 7 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. In particular, the subject matter "parts of the database" in claims 7 and 23 is objected to. Applicants respectfully traverse, but in order to expedite prosecution, Applicants have amended the claims

The Examiner submits that "parts of the database" is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse, but, in order to expedite prosecution, Applicants have amended claims 7, 15, and 23 to recite "the database, excluding the table space to be restored, is accessible to users" (e.g., Specification, page 6, lines 7-9).

In paragraph 13, claims 4, 12, and 20 are rejected under 35 U.S.C. 112, second paragraph, as the phrase "may be" renders the claim indefinite. Applicants have amended claims 4, 12, and 20 to recite "is capable of being" instead of "may be" to place the claims in better form and to overcome the rejection.

In paragraph 15, claims 7, 15, and 23 are rejected under 35 U.S.C. 112, second paragraph, as "parts of the database" is not defined. Applicants respectfully traverse, but, in order to expedite prosecution, Applicants have amended claims 7, 15, and 23 to recite "the database, excluding the table space to be restored, is accessible to users".

In paragraph 16, claim 24 is objected to. Applicants have cancelled claim 24 without prejudice.

In paragraph 17, claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson et al., US. Patent No. 6,115,704, in view of Pereira, U.S. Patent No. 6,122,540. Applicants respectfully traverse.

Applicants' Specification, page 2, lines 12-15 describes:

The only means in which a dropped table can be currently recovered in many relational databases, such as DB2, is through a database restore followed by a database roll forward to a point in time just prior to the table drop. As indicated above, such an approach will make the database as a whole unavailable to users. It may also be difficult to pinpoint when a table was dropped and therefore data will often be inaccurately retrieved due to uncertainties about when the table in question was dropped. In addition, the structure of the table may no longer be accurately known.

With the claimed invention, such problems are overcome by specifying one or more table spaces prior to one or more tables being dropped from the specified one or more table spaces, wherein specifying one or more table spaces comprises setting a dropped table recovery flag for each of the one or more table spaces in response to a request (e.g., Specification, page 3, lines 25-30). In response to receiving a request to drop a table from one of the one or more specified table spaces, a unique table identifier, a time stamp reflecting the time of drop, and table definition attributes for the table are stored in a dropped table history data structure and the table is dropped (e.g., Specification, page 4, lines 1-13). In response to receiving a request to restore the table space that includes the dropped table, each of the one or more tables in the table space being restored are recovered using the dropped table history data structure, wherein the restored table space pre-dates the table space from which the table was dropped (e.g., Specification, page 4, lines 14-30). In response to receiving a rollforward command, the table space containing the dropped table is rolled forward to a time reflected in the time stamp reflecting the time of the drop by replaying a set of stored transactions up to the time reflected in the time stamp and data from the dropped table in the rolled forward selected table space is copied to a storage data structure at a file location specified by a user (e.g., Specification, page 5, lines 1-26).

Claims 1, 9, and 17 describe that a dropped table recovery flag is set for each of the one or more table spaces in response to a request and, in response to receiving a request to drop a table from one of the one or more specified table spaces (for which the dropped table recovery flag is set), a unique table identifier, a time stamp reflecting the time of drop, and table definition attributes for the table are stored in a dropped table history data structure and the table is dropped. The Pereira patent at col. 5, lines 53-57 describes that a DBMS generally provides the ability to record or log changes that occur in the database, and that, in the Oracle DBMS, every transaction or change in the state of the database is recorded against a System Change Number (SCN). Recording data on transactions does not teach or suggest that, in response to receiving a request to drop a table from one of the one or more specified table spaces for which the dropped table recovery flag is set (from an earlier element of each claim), a unique table identifier, a time stamp reflecting the time of drop, and table definition attributes for the table are stored in a dropped table history data structure. Also, at Col. 6, lines 58-62, the Pereira patent describes that a trigger enters log information, such as row id, type of transaction, and current time stamp. Such information does not teach or suggest that, in response to receiving a request to drop a table from one of the one or more specified table spaces for which the dropped table recovery flag is set (from an earlier element of each claim), a unique table identifier, a time stamp reflecting the time of drop, and table definition attributes for the table are stored in a dropped table history data structure.

Also, claims 1, 9, and 17 describe that, in response to receiving a request to restore the table space that includes the dropped table, the table space being restored is recovered using the dropped table history data structure, wherein the restored table space pre-dates the table space from which the table was dropped. The Olson patent at Col. 12, lines 45-54, describes that a storage group is a collection of direct-access storage areas and that views do not occupy corresponding storage and can be defined over multiple tables. This does not teach or suggest that, in response to receiving a request to restore the table space that includes the dropped table, the table space being restored is recovered using the dropped table history data structure, wherein the restored table space pre-dates the table space from which the table was dropped.

Moreover, claims 1, 9, and 17 describe that, in response to receiving a rollforward command, the table space containing the dropped table is rolled forward to a time reflected in the time stamp reflecting the time of the drop by replaying a set of stored transactions up to the time

reflected in the time stamp and data from the dropped table in the rolled forward selected table space is copied to a storage data structure at a file location specified by a user. Applicants respectfully submit that this is not taught or suggested by the cited art.

Applicants respectfully submit that claims 1, 9, and 17 are not taught or suggested by the Olson patent or the Pereira patent, either alone or together.

Dependent claims 2, 4-7, 10, 12-15, 18, and 20-23 incorporate the language of independent claims 1, 9, and 17 and add additional novel elements. Therefore, dependent claims 2, 4-7, 10, 12-15, 18, and 20-23 are not taught or suggested by the Olson patent or the Pereira patent, either alone or in combination, for at least the same reasons as were discussed with respect to claims 1, 9, and 17.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-2, 4-7, 9-10, 12-15, 17-18, and 20-23 are patentable over the art of record. Applicants have not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 09-0460.

The attorney of record invites the Examiner to contact her at (310) 553-7973 if the Examiner believes such contact would advance the prosecution of the case.

Dated: August 3, 2006

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